CLAIM

I claim:

1. An optical CWDM system of large capacity, see Fig.1, 2 comprises:

A plurality of optical transmitters to send data from local terminal to remote site;

A plurality of optical receiving port from remote sites;

Trunk output port linked to remote node of network;

Trunk input port linked from remote node of network;

Multiplexing device to combine multiple local optical channels into the trunk output port;

De-multiplex device to extract each channel in trunk input port to its channel port;

2. There is a semiconductor DFB laser in each transmitter in claim 1. The laser serves as carrier for data transmission.

3. In claim 2, all laser units are without temperature control. This means that the system can tolerate wavelength drift of the laser when ambient temperature changes.

4. In claim 1, the wavelength coverage for the entire band is from 1300 to 1700 nm. Each laser in claim 2 has a unique wavelength in this range and the space for any two adjacent channels is 6 nm.

5. Channel multiplex device in claim 1 has the same construct as de-multiplex device. But the light traveling direction is reverse.

6. The channel de-/multiplexing device in claim 5 comprise:

The first stage is a plurality of CWDM, each of them to collect/extract between a plurality of individual channels and a small sub-group of the entire band in claim 1;

The second stage is another CWDM, collecting/extracting between a plurality of small bands from the first stage CWDM and the trunk port;

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A plurality of semiconductor laser amplifiers in each path of the small optical path between the first and the second stage CWDM.

7. Semiconductor laser amplifier in claim 6 is the conventional semiconductor F-P laser with anti-reflection coating on both two ends.

8. The band and bandwidth of each semiconductor laser amplifier in claim 6 is optimized and selected such that each amplifier for its small band covers the amplification for this small band.

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